REMARKS:

I) In the drawings, Fig. 2, is being amended to illustrate an electrically conductive structure on the work piece (foil strip 1) and to assign a numeral (S) to the structure. This structure is recited in the preamble of the original claims and is recited in various places in the body of the original specification, as well as the Abstract.

The fact that one of the upstream or downstream outside contacting electrodes (6, 14) must always touch a structure as it passes through an electrolysis region (M) was previously explicitly recited in the specification. It is explicitly and implicitly understood by one of ordinary skill in the relevant art that the distance between two successive outside contacting electrodes (6, 14) cannot be greater than the length of a structure (S) being treated in an electrolysis region (M).

In Figs. 2 and 8, the rinsing facilities (R) for washing or spraying (R) have been added. This structure is supported in the specification at original page 10 and in original claims 16, 33.

In Fig. 2, and air jets/air knives (A) have been added. This structure is supported in the specification at original page 10.

The features added to Figs. 2 and 8 are in "block format" and supported by the specification. No new matter has been added. Replacement Sheets are appended hereto.

Ia) The specification, at page 21 and at page 35 is being amended to reflect the amendment to Fig. 2. No new matter has been added.

II) Claims 13, 16, 38 and 46 are now being cancelled. Claim 14 is being amended to now depend from claim 2. The dependency of claims 17, 39 and 47 did not necessitate any amendments.

Independent claim 1 is being amended to recite the features discussed in the interview: that each individual electrically conductive structure is in constant electrical

contact with one of the contacting electrodes (6, 14) when in an electrolysis region; and a contact electrode rinsing facility is disposed to each contact electrode (6,14). This recites a rinsing facility as a structural limitation. Dependent claim 2 recites the limitation discussed during the interview: that the isolation material (13) covers the entire length of a counter electrode (4). Dependent claim 5 recites that the rising facility (R) is capable of to the intermittent and continuous washing/spraying operation. Dependent claim 6 now recites that each counter electrode (4) is of expanded metal. Dependent claim 14 now recites that the isolation material (13) is disposed so that the work pieces (1) touch the isolation material to wipe the structures (S) but the contact is insufficient to elongate the work pieces (1).

Independent claim 35 is being amended to recite the features discussed in the interview: that the isolation material (13) extends the entire length of a respective counter electrode (4). Dependent claim 37 now recites that the isolation material is on the entire face of the counter electrode (4). Dependent claim 42 now recites that the isolation material is both liquid and ion-permeable and is a coating. Dependent claim 47 now recites that the wiping is insufficient to elongate the work pieces (1). Dependent claim 52 now recites an electrode rinsing facility (R) respectively disposed to each contacting electrode (6, 14) for washing or rinsing said electrode (6, 14).

These amendments do not raise any new issues. Thus, the do not require a new search, nor do they require new considerations.

III) Claim 1, 2, 5- 23, and 35- 52 stand rejected under 35 USC §112, first paragraph. The Examiner has alleged that the amendment to the claims has added subject matter. Specifically, the Examiner has alleged that the limitation of claims 1 and 35 reciting: *contacting electrode and the electrolysis region are spaced "no more than the* [a] sic. *few centimeters apart"* is deemed new matter. The Examiner has argued that the specification does not support that the spacing between an electrolysis region and a contacting electrode is *no more than the few centimeters..* In support of his position the Examiner has cited

applicants' specification at page 5, line 33 to page 6, line 6. (This paragraph appears in the published application 2006/0201817 at [0019], and is reproduced below.)

In addition the Examiner has also alleged that the specification does not support that *the electrolysis region is less than 5 cm in length, but merely that the treated structures can be 5 cm.*

V) This rejection under 35 USC §112 is respectfully traversed.

The test for adequate disclosure relies upon the "explicit" or "implicit" disclosure of the structure to one of ordinary skill in the relevant art. The facts: (a) that the contacting electrode (6) or (14) and the electrolysis region (M) are spaced no more than a few centimeters apart; (b) that the spacing between an electrolysis region (M) and a contacting electrode (6) or (14) is not more than a few centimeters; (c) that an electrolysis region (M) is less than 5 cm in length; and (d) that the structures (S) to be treated are a few centimeters in length, e.g., 2- 5 cm are clearly disclosed both explicitly and implicitly to one of ordinary skill in the relevant art.

To wit: reference is now made to the printed publication of the present application US 2006/0201817, and the numbered paragraphs thereof.

Applicants first state the purpose of their invention.

At [0011] is stated:

"... the known methods do not permit to electrolytically treat surfaces with small structures that are electrically insulated against each other and that are deposited on an electrically insulated work piece in foil strip form in strip processing or conveyorized lines."

At [0015] is stated:

" ... the device of the invention serve to electrolytically treat more specifically small electrically conductive structures that are electrically insulated against each other on surfaces of electrically insulating strip form work pieces, more specifically of plastic strips (plastic foils) provided with such conductive structures..."

Applicants then recite how they are able to achieve their purpose.

At [0019] is stated:

"... In determining the spacing between the electrolysis region and the contacting electrode, the spacing between the beginning of the electrolysis region and the site on the contacting electrode that establishes sufficient contact with the work pieces is essential. This spacing is to be minimized. It should be chosen so that even electrically conductive structures of for example 5 cm may still be electrolytically treated with good results."

At [0020] is stated:

"...The smaller the spacing between the contacting electrodes and the electrolysis regions, the smaller the differences in the coating thickness between the end areas (as viewed in the direction of transport) ... due to the fact that the structures are in contact with the contacting electrodes while being simultaneously in the electrolysis region ... A layer that has the same thickness ... may be achieved when the spacings between the contacting electrodes in the device are so small that the structures can always be electrically contacted by at least one contacting electrode as the work pieces are conducted through the line ... As the object of the invention consists in metal plating structures having dimensions of but a few centimeters ... the spacing between the contacting electrodes should not exceed a few centimeters either."

At [0026] is stated:

"The minimum size of the insulated structures to be processed is ... determined by the minimum spacing ... achieved between the contacting electrode and the counter electrode. The minimum spacing depends ... on the spatial dimensions of the contacting electrodes as well as on the distance separating the contacting electrodes from the electrolysis region. It is ... advantageous to configure the contacting electrodes as rollers ... so that the spacing between the longitudinal axes of the rollers ... and the electrolysis region may be chosen ...very small...electrolytic treatment of structures having dimensions on the order of 2 cm or even less may be achieved."

At [0075] is stated:

"FIG. 1 illustrates a first embodiment ... This means that the discrete modules M ... have ... in the direction of transport, a length of a few centimeters if electrically isolating structures respectively having dimensions on the order of a few centimeters are to be treated. Viewed in the direction of transport, the length of a single module M may for example be 4.5 cm. The length of the various modules (in this context the reader is referred to size L in FIG. 2) depends on the size of the structures on the foil strip 1 ..."

At [0090] is stated:

> "In ... FIG. 1, the strip 1 is electrically contacted by means of electric contact rollers 6 or contact brushes 14, with said rollers 6 and brushes 14 not coming into contact with the processing liquid. ... the contact rollers 6 and the contact brushes 14 are located outside of the regions of the modules M that contain processing liquid."

From at least the above-reproduced statements and viewing Figs. 1, 2 and 4, one of ordinary skill in the relevant art understands in applicants' invention that:

(a) applicants' device electrolytically treats a series of electrically conductive structures (S) residing on a film (work piece 1) which film conveys the structures through a series of electrolysis regions (Modules M) in which they are electrolytically treated;

(b) the structures (S) are electrically isolated from one another and the work piece (1) film is electrically non-conductive;

(c) each Module (M) has at least one of an upper and/or lower processing liquid cell (chamber) with a respective upper and/or lower anode (counter electrode 4) within the electrolysis region (M) and in contact with the processing liquid;

(d) outside each Module (M) is an upstream contacting electrode (6) or (14) and a downstream contacting electrode (6) or (14);

(e) in order to achieve uniform electrolysis processing of a structure (S), one of the upstream or downsteam contacting electrodes (6) or (14) must always be in contact with the electrically conductive structure (S) as it is being conveyed through an electrolysis region (M).

Therefore, without the need for further referral to the specification, one of ordinary skill knows in applicants' invention: (a) that the distance between an upstream (outside) contacting electrode and a downstream (outside) contacting electrode must be equal to or less than the length of a structure being electrolytically treated in the electrolysis region; (b) the length of the electrolysis region must be less than the length of a structure being treated; and (c) the distance of the location of an (outside) contacting electrode to the electrolysis region (wall) must also be less than the length of a structure.

Referring to the reproduced paragraph portions of the published specification, above, it is readily understood by one of ordinary skill in the relevant art that applicants have disclosed: (a) that the electrolysis region can be less than 5 cm in length; (b) that a contacting electrode and the electrolysis region can be spaced no more than a few centimeters apart; and that the spacing between an electrolysis region and a contacting electrode can be no more than a few centimeters.

It should now be apparent that applicants have not introduced new matter into their claims. The standing 35 USC §112, first paragraph, rejection should now be withdrawn.

VI) Claims 1, 2, 5, 8-14, 17-23 and 35- 47 stand rejected under 35 USC §103(a) as being obvious in view of Hartmann et al (US 5,425,862). This rejection is respectfully traversed.

a) Hartmann is relied upon for teaching a device for electroplating a substrate (1). However, applicants do not claim a device to electroplate a substrate, but a device which electroplates distinct (electrically isolated) electrically conductive structures (S) carried on a substrate (1).

b) Hartmann is relied upon for at least one electrode (9, 10, 11, 12 - upper, 13, 14, 15, 16 - lower) for contacting work pieces (1), at least one electrolysis region (6, 7, 8), and at least one counter electrode (24, 25), wherein the work piece (1) and the at least one counter electrode (24, 25) are in contact with the processing liquid, characterized in that the at least one contacting electrode (9-16) is disposed outside of the at least one electrolysis region. It is agreed that applicants claim this structure.

c) However, Hartmann is also relied upon for the contacting electrode (9-16) not being in contact with the processing fluid. This is an incorrect reading of Hartmann.

While Hartmann's contacting electrodes (9-16) are not positioned within his electrolysis region (6 -8) and are not immersed in the processing fluid held therein, they do come in contact with the excess processing fluid which exits an electrolysis chamber (6- 8).

The Hartmann electrolysis region is intentionally not sealed and thus processing fluid exits on the film to come in contact with a contacting electrode and thereafter to drop into the bottom of his machine housing to be re-circulated to the fluid conditioning station of Fig. 4. The reconditioned fluid is then pumped to his electrolysis apparatus through in-flow piping (28, 29) Fig. 1. Figs. 1 and 2 clearly show one of ordinary skill in the art that each Hartmann electrolysis chamber has inlet piping but no outlet piping because the out flow is along the moving film (1) to the bottom of the tank to be piped out the bottom. See Fig. 1.

If the Hartmann contacting electrodes (9-12 and 13-16) become (are) electrolytically coated with copper, problems would be encountered in both situations (i) where a work piece (film 1) is covered with metal all over the surface thereof, and (ii) where small structures of conductive material provided on a non-conductive film (isolating support) are to be plated. In both situations, the metal deposited on the contacting electrodes would interfere with the substrate surface because, for example, any metal nodules forming on the contacting electrodes would be impressed into that surface thereby compromising the quality of the finish of the metal deposit on the work. This is a further difference between the Hartmann teachings and the present invention which difference further distinguishes the present invention over the prior art.

d) Hartmann is also relied upon for at least one contacting electrode and at least one electrolysis region to be spaced so close together that small electrically conductive structures can be treated. This also is an incorrect reading of Hartmann.

First Hartmann is not treating small electrically conductive structures on his film (1), but is treating the entire surface of his film. Secondly, the Hartmann film is not initially conductive, but is made so in its entirety (the entire surface) with treatment. Third, Hartmann is not concerned with spacing his electrolysis region (6) so close to a contacting electrode that small structures can be treated. Hartmann's limitation for the spacing of his electrolysis region and contacting electrode is "voltage drop". In fact, Hartmann is motivated to ever larger dimensions instead of smaller dimensions. Hartmann explicitly uses a tampon (66,

67) to support his film (1) in his electroplating chamber (6) for the purpose of extending the length of his electroplating chamber (6). See col. 4, lines 10- 15.

Furthermore, Hartmann's spacing is not what applicants consider and disclose as "small". Hartmann teaches spacing between neighbouring bonding devices (9- 16) contacting electrodes at 40 cm to 80 cm, preferably at 50 cm. See col. 9, lines 5- 8. This is a drastic departure of applicants' spacing of a few centimeters and certainly less than 5 cm.

Moreover, Hartmann explicitly teaches his desire to increase his dimensions. At col. 4, lines 42- 54, Hartmann states:

> "... the spacing of neighbouring bonding devices in the direction of movement of the plastic film is determined substantially by the inner voltage drops in the plastic film. It is so that the conductivity of the plastic film increases during the electroplating operation. Therefore, in an embodiment of the invention, the length of the electroplating chambers can increase in the direction of movement of the plastic film. The respective longitudinal dimensions of the electroplating chambers can be matched to the progressive layer build-up such that, with the same external voltage, it is substantially the same current density that is used everywhere."

e) Hartmann is relied upon for at least two contacting electrodes (9-16) disposed one each on either side of an electrolysis region (chambers 6-8) and the electrolysis region being in constant contact with at least one outside contacting electrode.

While, arguendo, applicant does not wish to presently challenge this hypothesis about Hartmann, it does not recite what applicants' claims recite. Applicants' claims explicitly recite that:

> *"e) the electrolysis region is less than 5 cm in length such that the electrically conductive structures are in constant electrical contact with one of the contacting electrodes 6, 14."*

One of ordinary skill understands that applicants' electrically conductive (isolated) structure (S) must be in physical contact with either the upstream or the downstream outside contacting electrodes at all times. This is true even for applicants' initial electrolysis region (M). And, it is true even when applicants' production line starts up.

This is not what the Examiner has alleged that Hartmann teaches.

f) Hartmann is relied upon for teaching that the spacing between two bonding devices (i.e., electrodes) following one behind the other in the direction of movement is preferable not too great so that the voltage drops within the plastic film do not result in non-uniform electroplating wherein the length of the individual electroplating chambers is governed by the permissible voltage drop within the plastic film.

As recited above, these Hartmann considerations are not present with applicants' invention. Applicants do not care about voltage drops within their plastic film (1). Applicants' plastic film (1) is merely the carrier (i.e., conveyor belt) of their electrically conductive isolated structures (S). Applicants do not determine the length of their individual electrolysis regions (M) by a permissible voltage drop within their plastic film (1) (carrier). Applicants' plastic film (1) is never electrically conductive, and therefore there is no voltage drop along any distance of applicants' film (1).

Hartmann's teachings of dimensions "not too great", and applicants' claim dimensions differ by a factor of 10 to 20, i.e., Hartmann teaches 40- 80 cm and applicants' invention uses 2- 5 cm.

Hartmann's teachings depart in drastic measure from applicants' claimed invention. The Hartmann structure cannot be changed by "routine experimentation" into applicants' invention. One of ordinary skill would not look to Hartmann's structure which was designed for electroplating the entire surface of his film (1) for electroplating applicants' discrete individual structures (S) carried on their film (1) conveyor.

g) Hartmann is relied upon by the Examiner to teach a soft tampon (66, 67) of open-pored plastic foam, extending between a respective counter electrode (anodes 24, 25) and the conveying path of the film (1). The Examiner then concluded that this tampon (66, 67) reads on the applicants' isolation material recited in claim 35, to wit:

> *"at least one layer of isolation material (13) extending between a respective counter electrode (4) and the conveying path of the work pieces (1)".*

The Examiner has cited Hartmann column 4, lines 10- 20 as support for his conclusion. However, Hartmann at this portion of his disclosure recites:

> *"The "span", that is the length of the electroplating chamber which can be freely spanned by the plastic film, can be extended, if appropriate, by there being provided inside the chamber, on both sides between the plastic film and a stationary part, a tampon of soft, open-pored plastic foam. The plastic foam is permeable to the electrolyte, that is it does not hinder the electrolysis. In spite of the-softness of the material, the tampon does, however, lend the plastic film a certain stability, so that in particular sporadic yielding or buckling out is made more difficult."*

Hartmann merely recites that his tampon is a "mechanical guide" or support to keep his film form buckling out. Moreover, Hartmann explicitly recites his tampon to be open-celled (open-pored) so as not to interfere with the electrolysis action of the electrolyte, i.e., it is permeable to the electrolyte - permeable to ion movement. This means that the Hartmann tampon cannot act as "isolation material", as applicants require of their material (13).

The tampon (65, 66) of Hartmann and the layer (13) of the present invention have two completely different functions, which in turn influence the shape thereof. Hartmann's tampon "support guide" (66, 67) is not a layer in the sense of the present invention. The layer (13) of the present invention is used to provide an electrical isolation between the work piece (1) traveling through the electrolysis cell (M) and the anode (4). It is for this reason that the layer (13) of the present invention extends throughout the entire cell (M) and is not confined to a small area, such as Hartmann's tampon (66, 67).

Moreover, contrary to the present invention, Hartmann has explicitly disclosed his tampon (66, 67) to be transparent to the electrolytic action of his cell. This explicitly teaches away from electrical isolation.

Reading Hartmann's statement in combination with Fig. 2, one of ordinary skill sees that Hartmann's tampon (66, 67) is not a "layer". The Examiner is attempting to construe Hartmann's tampon in light of applicants' claim language and disclosure, with a hindsight

that is beyond what Hartmann teaches. Applicants' isolation layer (13) extends over the length of the electrolysis region (M) counter electrode (4). Hartmann's tampon does not do this. It merely supports the mid-point of the film. One of ordinary skill would not extend Hartmann's tampon over the entire surface of his anode electrode (24, 25) as that would interfere with the spray of processing liquid pumped through each of the holes 30 in each of the electrodes (24, 25). This spray is "aimed" in the direction of movement of the film (1), Fig. 2. To extend the discrete support into a layer would completely disrupt the Hartmann electroplating process. While Hartmann does state, at col. 10, lines 39- 44, that his "foam tampon" is open-pored to permit the passage of electrolyte, that does not mean that the open-pored foam will not interfere with the electrolyte "spray" through the holes 30, which it does, and which one of ordinary skill understands.

Hartmann does not obviate the subject features of applicants' claim 35.

h) Hartmann is relied upon to teach sealing members (20, 22) for separating his electroplating fluid within his chamber (6) from his downstream (outside) contact electrodes (10 et al.). This is incorrect and inconsistent with the Hartmann disclosure.

Hartmann explicitly recites his squeezing rollers to be conveying devices for moving his film along. These rollers are in pairs, which pairs are canted at an angle from one another such as to squeeze the film flat across its width, but with a limited pressure regulated by a slip clutch drive.

Nowhere does Hartmann recite the words "seal" or "sealing".

From the discussion above, it is apparent to one of ordinary skill that the Hartmann squeeze rollers cannot seal closed his electroplating chamber, because that would preclude the circulation and reconditioning of processing fluid to which Hartmann dedicates a considerable portion of his specification.

Hartmann does not obviate applicants' claims 8 or 9.

i) The Examiner has hypothetically alleged that it would be obvious for one of ordinary skill to attach Hartmann's outside contacting electrodes (10, 14) "*on any walls outside of the plating chamber in order to prevent the plating solution from contacting the electrodes*".

This is a convoluted and contradictory statement by the Examiner. First, it is an admission that Hartmann's processing fluid exits his chamber and can come in contact with his outside contacting electrodes. This is contradictory to the Examiner's previous assertions about Hartmann.

Secondly, it is totally scientifically illogical. The contact "points" of the Hartmann outside contact electrodes is determined. To move a contact electrode to "higher ground" would either separate it from contacting the film at a specific contact point, or force a longer brush (14) or larger roller (6) to maintain the electrical contact with the film. The first disrupts the Hartmann device, the latter continues the likelihood of processing fluid contacting the electrode.

Moveover, the Examiner has overlooked the bottom contact electrodes which will have processing fluid drip onto them as it drips from the film and is collected at the bottom of the Hartmann tank to be pumped to the reconditioning station.

Hartmann cannot obviate applicants' claims 10 and 21.

j) The Examiner's allegations of Hartmann obviating applicants' claims 11, 12, 13 and 14, 17, 18, 19, 20, 22 and 23, 36, 37, 38, 39, 40, 41, 42, and 43-47 are also without substantial foundation. The Examiner is mistaken as to what Hartmann teaches and what applicants have claimed.

k) The standing 35 USC §103(a) rejection of claims 1, 2, 5, 8-14, 17- 23 and 35- 47 should now be withdrawn.

VII) Claims 6 and 7 stand rejected under 35 USC §103(a) as obvious in view of Hartmann read with Hirt et al. (US 4,282,073). In support of this rejection, the Examiner has first stated that the instant claims appear directed to vertically immersing the substrate into the processing liquid in a plating tank. In addition, the Examiner has alleged that Hirt teaches an apparatus for electroplating a strip substrate which is vertically immersed into a plating tank.

VIII) This rejection is respectfully traversed. Applicants' claims are silent on the exact terminology of the direction of immersion. However, pursuant to *Markman v. Westview Instruments, Inc.*, 116 S Ct 1384 (1996), one of ordinary skill must look to applicants' disclosure to interpret the meaning of claims 6 and 7. From applicants' Fig. 5, the direction of travel of applicants' film at the point of entrance (immersion) and the point of exit from the bath surface (15) of the fluid bath held in the tank (12) is indeed precisely vertical.

However, Hirt, from an inspection of his Fig. 2 defines an entrance and exit path for his film that is not vertical, nor horizontal, but "inclined". Clearly applicants' claims 6 and 7, pursuant to the Examiner's interpretation of the claim language, distinguish over Hirt.

Moreover, claim 6 recites the limitation: "*the at least one contacting electrode (6, 14) being disposed on the surface of the processing liquid*".

Hirt shows his nickel plate bath (30) and his nickel/zinc alloy plating bath (40) in Fig. 2. Hirt places all of his plating electrodes (anodes 33a, b and 33c, d) in his bath (30) and his plating electrodes (anodes 43a and 43b) in his bath (40). The Hirt contact electrodes are his rolls (31b) and (41b) both marked with a negative sign as they are connected to the negative terminal of the Hirt dc generator. Fig. 2 clearly shows the Hirt contact roll electrodes above the walls of his tanks. Hirt is silent on the level of his electrolyte fluid in his tanks, except for his statement that his rolls (32a, 32b, 42a and 42b) are emersion rolls which force the steel strip (5) to be immersed in the processing fluid and to pass between the pairs of anodes (33a-d and 43a-b). These electrodes are positioned below the top of the Hirt tanks and could support an assumption that the upper anode of each pair was about on the surface of the processing fluid. However, these electrodes are not contacting electrodes. Therefore, Hirt does not provide the claimed structure.

Applicants' claim 6 recites a surface position for their contacting electrode (6, 14). This is neither shown nor suggested by Hirt nor by the combination of Hartmann and Hirt. This limitation is a drastic departure from the teachings of the cited prior art.

Therefore, the standing 35 USC §103(a) rejection of claims 6 and 7, based upon the combination of Hartmann and Hirt,should now be withdrawn.

IX) Claims 15, 16 and 52 stand rejected under 35 USC §103(a) as obvious in view of Hartmann when read with Avellone (US 4,401,523). Avellone is relied upon for showing a strip plating path inclined to the horizontal. Avellone teaches inclining his path longitudinally in the direction of travel of his strip. See Figs. 1 and 7A. Specifically, Avellone recites in relation to Fig. 7A at col. 11, lines 1- 6, that the incline of his strip path improves plating performance. The Avallone Fig. 7A clearly shows the strip path inclined longitudinally in the direction of travel. This is a *Walker Process* type improvement. However, the Avellone incline is only a short length through his bath. The remainder of the travel length through the Avellone bath is essentially horizontal and not inclined. See Fig. 7A.

Moreover, the Examiner's reliance is upon an incline of the "conveying path" and not an incline of the "plating section" of the conveying path. The Avellone "conveying path" shown in Avellone's Figs. 1, 7 and 7A has "flat" horizontal sections, inclined downward sections, and inclined upward sections. Such flat sections, inclined downward sections, and inclined upward sections for a "conveying path" are also shown by Hirt, Fig. 2. However, the inclines shown by Avellone and Hirt are each explicitly in the longitudinal direction, i.e., in the direction of travel of the conveying path.

a) Applicants' do not incline their film strip in a longitudinal direction, i.e., in the direction of travel of their film. To the contrary, applicants' incline their film strip laterally so that their processing fluid can flow off of their film strip to the side. See the published application 2006/0201817 at [0033] and [0079]. For this reason and for the other reasons recited below, this rejection is respectfully <u>traversed</u>.

Avallone would not incline his strip laterally as that would <u>encourage</u> plating fluid to flow to the lower <u>side edge</u> of his strip and then over the edge of the strip. This would contribute to an increase edge build-up and/or "tree growth", as one of ordinary skill in the

relevant art understands. In other words, Avallone is galvanizing the entire surface of his steel strip (12). He wants the coating of plated metal to be uniform both longitudinally along the length of the strip and laterally across the width of the strip. Avallone is concerned with avoiding edge plating phenomena. At column 4, between lines 26 and 48 Avallone states:

> " ... To insure uniform plating thickness across the width of the strip, masking plates are inserted in the path of solution flow. These plates are electrically insulating and reduce plating current at the strip edges to reduce two undesirable phenomena known as "tree growth" and "edge buildup"...
>
> ... A tracking sensor, just ahead of the plating cell, continuously senses strip edge lateral location, transverse to longitudinal strip movement. A mask adjustment section compares strip edge location with actual lateral mask location, and adjusts mask location to maintain the mask at a constant lateral position relative to the strip edge.
>
> In another specific embodiment, the mask defines a notch or groove into which the strip edge protrudes, to better guard against undesirable edge plating phenomena."

At column 8, Avellone teaches: "*These masking plates are adjusted to restrict current flow to the workpiece edges and thereby prevent two undesirable phenomena known as edge buildup and tree growth*". One of ordinary skill would not read Avellone as teaching anything which would contribute to edge build-up. Clearly, increasing the amount of processing fluid that would flow over the edge of the Avellone steel strip, by inclining the strip laterally, would contribute to undesirable edge plating phenomena.

In the present invention, edge plating phenomena <u>is not an issue</u>. This is because applicants' film <u>is non-conductive and therefore is not being plated</u>. Both Hirt and Avellone teach steel strips wherein the strips are conductive and being plated.

Contrary to what is shown in the Avellone and Hirt figures, applicants incline their "conveying path" laterally from the horizontal. The prior art merely inclines a selected portion of their conveyor paths longitudinally while other portions are horizontal and not inclined. The language of claim 15 distinguishes the present invention over the cited art.

b) Applicants' claim 16 recites: "*rinsing facilities ... by which at least one contacting electrode (6, 14) can be continuously or intermittently rinsed*". While Avellone shows a

rinsing station (28), Fig. 1, this rinsing station is for rinsing his strip and not any electrodes. Hirt also shows a water rinse bath (15) for rinsing his strip, only, Fig. 2.

The cited prior art has no reason to rinse electrodes, does not rinse electrodes, and thusly teaches contrary to the limitation recited by applicants' claim 16.

c) Applicants' claim 17 depends from claim 1 and distinguishes over the cited prior art for the reasons above-recited with respect to claim 1.

d) Applicants' claim 52 recites that: "*the conveying path ... is inclined from the horizontal the entire distance from the entrance cell wall (10) to the exit cell wall (10)*". It is clear from applicants' specification that the cell walls (10) defines applicants' electrolysis region (M), Figs. 1, 2, et seq.

Avellone, Fig. 1, shows the strip conveying path through the plating section(s) to be "flat", i.e., horizontal, wall-to-wall. The same is true for Avellone Figs. 2 and 6 (flat conveying path, wall-to-wall).

In Fig. 7, Avellone shows his coveying path through his plating units 200, 202, and 204, entrance wall to exit wall, to be mostly "flat" with a short incline around the drive rollers.

In Fig. 7A, Avellone shows his conveying path through his three plating units (entrance wall to exit wall) to be partially inclined in the longitudinal direction of transport, and partially flat.

Applicants' above-recited limitation of claim 52 distinguishes applicants' claimed invention over the cited art.

e) The standing 35 USC §103(a) rejection of claims 15- 17 and 52 should now be withdrawn.

X) For all of the above reasons, the claims presented herein above must be considered allowable. It is requested that the application be re-examined with the existing claims 1- 2, 5- 23, and 35- 52 and be passed to issue with these claims.

No additional fees are believed to be required. In the event that an additional fee is required with respect to this communication, the Commissioner is hereby authorized to charge any additional fees, or credit any overpayment, to Paul & Paul Deposit Account No. 16-0750. (order no. 7952)

Respectfully submitted,
Paul & Paul

Date: March 31, 2010

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